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ABSTRACT

A survey was undertaken to explore how changes in the faculty job market, and the uncertainties they produce, are reflected in one limited aspect of institutional behavior: the hiring of new faculty members. The survey focused on the attitudes and expectations of administrators at two- and four-year colleges with respect to the educational attainment of new faculty. Information was sought on: the distribution of new employees among ten selected broad fields; the proportion in each field that had the doctorate degree; expected changes in those proportions over the next five years; and preference for doctorate-holders in science and nonscience fields.

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New Full-Time Faculty 1976-77: Hiring Patterns by Field and Educational Attainment

Frank J. Atelsek and Irene L. Gornberg

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Number 38 March 1978

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This survey was conducted at the request of the
National Science Foundation.

Highlights

New Hires

- Of the 10,000 first-time, full-time faculty hired in 1976-77 by four-year colleges in the surveyed fields, 30 percent were in the arts and humanities, 23 percent were in the social sciences, 13 percent in education, and 12 percent in business and management.
- 56 percent of the new faculty hired at private four-year colleges, compared with 49 percent at public four-year colleges, had the doctorate degree*.
- The fields with the largest proportions of new faculty with doctorates in four-year colleges were the physical sciences (71 percent), basic social sciences (70 percent), and mathematics (60 percent). The field of business and management had the smallest proportion--35 percent.
- Public four-year colleges hired larger proportions of new faculty with doctorates than did private four-year colleges in the fields of biological sciences, business and management, and the social sciences (other than basic). Private four-year colleges hired larger proportions in all other fields except education, where the proportions were about equal.
- Of new faculty hired in the fields surveyed at two-year colleges, about 11 percent had, or were soon to receive the doctorate degree.
- The largest proportion of new faculty with doctorates at two-year colleges was hired in the physical sciences (26 percent), followed by the basic social sciences (24 percent). Fewer than 5 percent of the new hires had doctorates in the fields of biological sciences, business and management, agriculture and natural resources, and engineering.

Expected Changes in Hiring Patterns

- In any of the surveyed fields, less than 3 percent of all four-year colleges expected decreases over the next five years in the proportions of new faculty with doctorates.
- The majority of four-year colleges expected the proportion of new faculty with doctorates to remain relatively stable in all fields surveyed except business and management, where 63 percent expected the proportion to increase.
- At two-year colleges, the expectation that proportions of new faculty with doctorates will remain constant ranged from a high of 92 percent in the field of agriculture and natural resources, to a low of 62 percent in the arts and humanities.

Preference for Doctoral Faculty

- 67 percent of four-year colleges, but only 8 percent of two-year colleges, expressed a strong preference for faculty with doctorates in science and engineering fields.
- In nonscience fields, 42 percent of four-year colleges, and 7 percent of two-year colleges, expressed such a preference.

*Included in the estimates of faculty with doctorates are faculty who were expected to earn the doctorate within two years of their appointment.

Acknowledgments

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Finally, a special note of appreciation to our Panel representatives at the responding colleges whose cooperation makes our surveys possible.

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Background

Changing conditions at many higher education institutions in recent years have made college administrators more cautious about the future. The job market for new Ph.D.'s has tightened; faculties have become more active in collective bargaining; long-held beliefs about the meaning of tenure are being questioned and sometimes revised. This survey was intended to explore how such changes--and the uncertainties they produce--are reflected in one limited aspect of institutional behavior: the hiring of new faculty members. More specifically, it focused on the attitudes and expectations of administrators at two-year and four-year colleges with respect to the educational attainment of new faculty. Information was sought on the distribution of "new hires" among ten selected fields; the proportion in each field that had the doctoral degree; expected changes in those proportions over the next five years; and preference for doctorate-holders in science and in nonscience fields.

The findings from this survey will be useful to those people responsible for projecting the need in higher education for doctorates in various fields. This need depends upon two factors: the total number of new faculty appointed, and the proportion of those appointees who have doctorates. Prior to this survey only limited information was available on the second factor. Survey findings should also assist academic administrators and planners in assessing the future market for doctorate recipients, and in comparing the hiring patterns of their own institutions with those of other two- and four-year colleges.

Methods Summary

The Higher Education Panel is a continuing survey research program created in 1971 at the American Council on Education. The Panel's main purpose is to obtain as quickly as possible policy-related data on issues of current importance to the higher education community and to government agencies.

The Panel is a disproportionate stratified sample based on a network of campus representatives at 760 colleges and universities broadly representative of the more than 3,000 institutions of higher education located in the United States. Each institution in the population is characterized in terms of a set of variables constituting the Panel's stratification design, primarily type (university/four-year college/two-year college), control (public/private), and size (full-time-equivalent enrollment).

For this particular survey, the eligible population was defined to include all two-year and four-year colleges; universities and medical colleges were excluded. The survey instrument (see Appendix A) was mailed in late April 1977 to all 535 Panel members meeting this definition. By the deadline for returning questionnaires, and after two mail followups, usable data were received from 449 institutions, for a response rate of 84 percent. Appendix B, containing an analysis of respondents, indicates that nonresponding institutions did not differ appreciably in type, control, size, or region from those responding.

To obtain national estimates, each data item was weighted, within each stratification cell, by the ratio of the number of institutions in the population to the number of institutions that responded to that particular survey item. Appendix C outlines the stratification in more detail.

The tables are presented by type and control of institution. (Estimates of sampling error, expressing in terms of 90 percent confidence intervals, were computed for the first two tables.) The reader is reminded that, due to weighting and rounding, subtotals may not add up exactly to their corresponding totals.

Findings

Specifically, the respondent at each institution was asked to indicate the number of new people (i.e., those who had never previously been employed as full-time faculty at any academic institution) joining its regular full-time faculty during the 1976-77 academic year in each of ten specified fields. Further, the respondent

was asked to indicate the number of those "new hires" who either had already earned a doctorate or were likely to do so within a year or two of appointment.

Description of New Hires

Approximately 10,000 new faculty members were hired last year by four-year colleges; the arts and humanities accounted for the largest proportion (30 percent), followed by the social sciences (23 percent), education (13 percent), business and management (12 percent), and the physical sciences (7 percent) (Table 1). Mathematics, biological sciences, and engineering each accounted for 5 percent of the new full-time appointments. Only 1 percent of the new faculty members were hired in the field of agriculture and natural resources. This general rank-ordering of fields was roughly the same for public and for private four-year colleges.

Of the 1,657 four-year colleges represented in the survey, 76 percent were private. These institutions accounted for just over half (51 percent) of the new full-time faculty hired in 1976-77 in the surveyed fields. Of these new hires, 56 percent either had received the doctorate or were likely to receive it within one or two years of their appointments. At public four-year colleges, this proportion was 49 percent.

The proportion of doctoral-level faculty among the newly hired varied substantially by field in four-year institutions. The physical sciences and the basic social sciences were most likely to hire those with the doctorate: 71 percent and 70 percent, respectively, of their new faculty hires already had, or were close to, a doctoral degree. The field of mathematics drew the next highest proportion of doctorates (60 percent). In six fields--engineering, other than basic social sciences, education, biological sciences, arts and humanities, and agriculture and natural resources--the ratio of doctorates to nondoctorates among the new full-time hires was about even, ranging between 52 percent and 45 percent. In only one field, business and management, did the proportion of doctorates fall far below half: 35 percent. Private four-year colleges hired larger proportions than public four-year colleges of doctorate-level faculty in six of the ten surveyed fields: physical sciences, basic social sciences, mathematics,

agriculture and natural resources, engineering, and arts and humanities. The public four-year colleges hired larger proportions of doctorate-level faculty in three fields: biological sciences, business and management, and "other" social sciences. And in both private and public colleges, about half of the new hires in the field of education had the doctorate.

Field	Percentage of Doctoral-Level Faculty Among New Full-Time Hires at Four-Year Colleges, 1976-77	
	Public	Private
Social sciences, basic	67	73
Biological sciences	64	40
Physical sciences	57	80
Social sciences, other	54	47
Education	50	49
Mathematics	49	71
Engineering	46	61
Arts and humanities	42	55
Agriculture and natural resources	41	68
Business and management	39	30

The two-year colleges, which accounted for approximately one-third of the estimated 14,900 new college faculty appointed during 1976-77 in the fields surveyed, had very different hiring patterns (Table 2). Overall, only one in ten of their new full-time faculty members held a doctorate (or was close to it). As in the four-year colleges, the physical sciences and the basic social sciences accounted for the largest proportions of doctorates among their new hires (26 percent and 24 percent, respectively). Fewer than one in twenty of the new faculty members hired in the following fields had received or were close to receiving the doctorate degree: biological sciences, business and management, agriculture and natural resources, and engineering. The proportions of doctoral-level new hires in education, the arts and humanities, "other" social sciences, and mathematics were considerably greater (16 percent, 13 percent, 13 percent, and 10 percent, respectively).

About 1,100 two-year colleges are represented in the weighted figures cited above. Of these, nearly eight of ten are public institutions, which accounted for 87 percent of the estimated 4,900 new faculty hires at all two-year colleges, including 88 percent of those at the doctoral level.

Expected Changes in Hiring Patterns

Institutional respondents were asked how the proportions of new faculty with doctorates were likely to change over the next five years in each of the ten fields covered by the survey.

At very few of the four-year colleges were the proportions expected to drop below current levels (Table 3). In fact, for nine of the ten fields surveyed, fewer than 3 percent of either the public or private four-year institutions expected decreases (Tables 4 and 5). The single exception was education: 8 percent of the respondents at the public institutions expected the proportion of doctorates among new faculty in this field to fall below their present levels.

At the other extreme, fewer than 6 percent of the four-year college respondents expected that in the near future all new faculty hired in any of the ten fields would have doctorates.¹ Most expected the proportions to remain at current levels in all fields except business and management. In that field, more than three-fifths of respondents expected the proportion of doctorates to increase above present levels. In contrast, the physical sciences, which accounted for a greater proportion of doctoral-level faculty hires than any other field, were expected to stay at the present level by 72 percent of the respondents.

Respondents at two-year colleges had very similar expectations for the next five years, even though the present proportion of doctorates among new faculty was much lower than at four-year colleges. In general, the proportions were not expected

¹A small number of respondents indicated they expected no change in the proportion with doctorates--it was already 100 percent. Therefore, the proportion expecting an increase to 100 percent in the future may be artificially low.

to fall below present levels, with the great majority expecting hiring patterns to remain as they are now (Tables 6-8).

The summary table below indicates the percentage of two-year colleges expecting increases in doctoral-level new hires over the next five years for each of the ten fields surveyed:

<u>Field</u>	<u>Percentage of Two-Year Colleges Expecting Increased Proportions of New Faculty with Doctorates, 1977-1982</u>
Arts and humanities	35
Biological sciences	31
Social sciences, basic	29
Social sciences, other	26
Physical sciences	24
Business and management	22
Mathematics	20
Education	16
Engineering	11
Agriculture and natural resources	8

Preference for Doctoral Faculty

Another item on the survey questionnaire asked: "How strongly does your institution prefer (faculty) candidates with doctorates?" (1) in science and engineering fields and (2) in fields other than science and engineering. Tables 9 and 10 show the responses to these preference items.

As expected, preference for faculty candidates with doctorates was much stronger in four-year than in two-year colleges. This difference was especially marked for science and engineering fields. Two-thirds of the four-year institutions, but only 8 percent of the two-year institutions, expressed a strong preference for doctoral-level faculty in science and engineering fields. In the nonscience fields, 42 percent of the four-year colleges, but only 7 percent of the two-year institutions, expressed such a level of preference for doctorates. These results are, of course, consistent with the disparity between two- and four-year institutions in the proportions of doctoral-level faculty they presently hire.

The patterns of preference among four-year colleges were different for science

and the nonscience fields, as shown in the summary table below:

<u>Degree of Preference for Hiring New Faculty with Doctorates at Four-Year Colleges</u>	<u>In Science and Engineering Fields</u>	<u>In Nonscience Fields</u>
Consider doctorates <u>essential</u> , or <u>strongly prefer</u> doctorates for all new faculty	66%	42%
Consider doctorates essential (or strongly prefer) for new faculty in <u>some</u> fields but not in others	15%	42%
<u>Slightly prefer</u> doctorates for all new faculty	0%	11%
<u>Do not prefer</u> doctorates for <u>any</u> new faculty	2%	0
Other	8%	5%

It is apparent that the preference for doctoral-level faculty was broader in the science and engineering fields (with 66 percent stating a strong preference for doctoral faculty in all such fields) and more specific among the nonscience disciplines (with 42 percent limiting their preference to specific fields only).

Conclusions

In some ways, the modest proportions of doctorate-holders among first-time, full-time faculty hired at the nation's academic institutions are surprising. Over the last few years, we have heard much about the supply-demand imbalance at the doctoral level; the image of new Ph.D's having to take jobs wholly unrelated to their fields of expertise has been widely publicized. One would expect that institutions would take advantage of the supposedly intensified competition for doctoral-level jobs in order to increase the proportion of doctorates among their new faculty.

This expectation, however, is countered by a number of factors. At two-year colleges, for example, the education and training required for attainment of the doctorate is often not considered advantageous for a person whose primary task will be teaching undergraduates. According to Arthur M. Cohen:

Community college administrators frequently complain that graduate education is inadequate to train teachers for their institutions. They want teachers committed to the open-door philosophy and with a genuine interest in students. They want a flexible faculty, instructors who will plan courses carefully.

They want faculty who do not hold a strict allegiance to a single academic discipline, but are able and willing to teach in two or three fields.²

The present study confirms that, in the immediate future as in the past, the two-year colleges will give priority to considerations other than possession of the doctorate when evaluating the qualifications of candidates for faculty appointment.

The four-year colleges, however, have a strong tradition of preferring doctoral-level faculty where the institution can attract and afford such people. With the apparent surplus of new Ph.D.'s in many fields, the present would seem to be such a time; yet the survey findings do not suggest a concerted drive to obtain doctorate faculty. Our postsurvey discussions with respondents from four-year colleges revealed some of the reasons for this situation.

The most frequently mentioned reason was anxiety over possible enrollment declines. Even at those institutions where enrollments have increased over the last few years, administrators were fearful about future downturns and thus unwilling to commit themselves to hiring permanent faculty members. Several respondents said that, in these uncertain times, they prefer to hire temporary faculty; these people typically have master's degrees and are assigned to teach introductory courses. In short, some new faculty members are being hired at junior levels to nontenure-track positions so that the institution can avoid commitments that may later prove to be a burden.

Second, many respondents mentioned budget constraints. Even with the apparent oversupply of doctorates available for teaching positions in many fields, the institution found it more economical to hire new faculty at the master's level. Further, many institutions have set the goal of achieving a more balanced faculty through affirmative-action hiring of minority-group members and women. According to some respondents, it is still difficult to find women and minorities with Ph.D.'s in certain fields; institutions must compete for the small supply of such people that does exist. Consequently, many administrators have opted to improve faculty balance by

² Arthur M. Cohen, "Educating Teachers for New Times," Change, September 1976, p. 64.

hiring at the master's level rather than to increase the proportion of doctor-ates on their faculties.

Table 1

Educational Attainment of New Full-Time Faculty, by Field, 1976-77:
Four-Year Colleges

Field	Total (N=1,657)			Public (N=390)			Private (N=1,267)		
	Number of New Faculty	Percent with Doctorate ^a	Confidence Interval of Percent ^b	Number of New Faculty	Percent with Doctorate ^a	Confidence Interval of Percent ^b	Number of New Faculty	Percent with Doctorate ^a	Confidence Interval of Percent ^b
Agriculture and natural resources	142	45.1	13.9	120	40.8	4.5	22	68.2	20.6
Arts and humanities	2,940	49.0	7.2	1,716	41.9	7.3	1,624	54.8	15.8
Biological sciences	482	49.8	17.8	194	63.9	14.5	288	40.3	23.9
Business and management	1,203	35.0	2.4	694	38.8	4.0	509	29.9	3.9
Education	1,272	49.8	3.2	715	50.5	5.8	557	49.0	5.4
Engineering	465	51.8	30.1	284	46.1	15.8	181	60.8	52.5
Mathematics	541	60.3	10.3	263	49.0	3.8	278	70.9	13.6
Physical sciences	687	70.6	4.6	287	56.8	2.5	400	80.5	6.0
Social sciences, basic	1,474	70.4	2.9	674	67.1	2.9	800	73.1	2.2
Social sciences, other	773	50.2	11.5	353	53.8	13.8	420	47.1	15.2

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bNinety percent confidence intervals were computed and should be interpreted as (+) or (-).

Table 2

Educational Attainment of New Full-Time Faculty, by Field, 1976-77:
Two-Year Colleges

Field	Total (N=1,146)			Public (N=900)			Private (N=246)		
	Number of New Faculty	Percent with Doctorate ^a	Confidence Interval of Percent ^b	Number of New Faculty	Percent with Doctorate ^a	Confidence Interval of Percent ^b	Number of New Faculty	Percent with Doctorate ^a	Confidence Interval of Percent ^b
Agriculture and natural resources	273	2.2	3.4	258	2.3	3.4	15	0	-
Arts and humanities	1,249	13.1	10.2	1,043	14.3	11.6	206	7.3	9.6
Biological sciences	510	4.5	2.1	450	5.1	2.2	60	0	-
Business and management	982	3.6	2.0	792	2.5	1.5	190	7.9	10.0
Education	219	16.0	11.9	175	11.4	10.4	44	34.1	47.7
Engineering	275	2.2	1.5	275	2.2	1.5	0	0	-
Mathematics	403	9.9	3.0	359	11.1	3.6	44	0	-
Physical sciences	211	25.6	12.6	211	25.6	12.6	0	0	-
Social sciences, basic	503	24.1	12.9	427	24.7	14.2	74	20.3	28.3
Social sciences, other	259	12.7	11.1	244	13.5	11.9	75	0	-

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bNinety percent confidence intervals were computed and should be interpreted as (+) or (-).

Table 3

Expected Changes in the Proportion of New Full-Time Faculty with Doctorates, by Field, 1977-82:
Total Four-Year Colleges

Field	Total		Percent of Institutions Expecting Proportion with Doctorates ^a to:			
	Number ^b	Percent	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82
Agriculture and natural resources	192	100.0	0	60.5	39.0	.6
Arts and humanities	1,459	100.0	1.2	54.1	42.3	2.4
Biological sciences	1,334	100.0	2.1	65.0	28.1	4.8
Business and management	1,162	100.0	.1	36.5	61.4	2.0
Education	1,241	100.0	2.5	52.7	39.2	5.6
Engineering	233	100.0	.5	63.5	30.3	5.7
Mathematics	1,333	100.0	.7	61.3	34.0	4.0
Physical sciences	1,278	100.0	.3	71.8	22.7	5.1
Social sciences, basic	1,334	100.0	.2	60.0	34.9	4.9
Social sciences, other	1,191	100.0	0	60.2	38.0	1.8

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bThe number of institutions varies because not all institutions have all fields.

Note: On this and subsequent tables, subtotals may not add up exactly to their corresponding totals, due to weighting and rounding.

Table 4

Expected Changes in the Proportion of New Full-Time Faculty with Doctorates, by Field, 1977-82:
Public Four-Year Colleges

Field	Total		Percent of Institutions Expecting Proportion with Doctorates ^a to:			
	Number ^b	Percent	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82
Agriculture and natural resources	94	100.0	0	59.3	39.5	1.2
Arts and humanities	380	100.0	2.8	52.3	42.0	2.8
Biological sciences	369	100.0	.3	66.6	25.4	7.7
Business and management	344	100.0	.3	37.5	58.4	3.8
Education	360	100.0	7.9	47.7	35.6	8.8
Engineering	101	100.0	1.1	60.2	34.1	4.5
Mathematics	365	100.0	.6	54.0	37.0	8.4
Physical sciences	366	100.0	1.2	64.5	24.5	9.9
Social sciences, basic	375	100.0	.6	56.1	36.5	6.7
Social sciences, other	347	100.0	0	55.4	40.3	4.3

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bThe number of institutions varies because not all institutions have all fields.

Table 5

Expected Changes in the Proportion of New Full-Time Faculty with Doctorates, by Field, 1977-82:
Private Four-Year Colleges

Field	Total		Percent of Institutions Expecting Proportion with Doctorates ^a to:			
	Number ^b	Percent	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82
Agriculture and natural resources	98	100.0	0	61.5	38.5	0
Arts and humanities	1,079	100.0	.7	54.8	42.4	2.2
Biological sciences	965	100.0	2.8	64.4	29.1	3.7
Business and management	818	100.0	0	36.1	62.6	1.3
Education	881	100.0	.4	54.7	40.6	4.3
Engineering	132	100.0	0	65.9	27.6	6.5
Mathematics	968	100.0	.8	63.9	32.9	2.5
Physical sciences	912	100.0	0	74.7	22.0	3.3
Social sciences, basic	959	100.0	0	61.5	34.2	4.3
Social sciences, other	844	100.0	0	62.0	37.1	.9

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bThe number of institutions varies because not all institutions have all fields.

Table 6

Expected Changes in the Proportion of New Full-Time Faculty with Doctorates, by Field, 1977-82:
Total Two-Year Colleges

Field	Total		Percent of Institutions Expecting Proportion with Doctorates ^a to:			
	Number ^b	Percent	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82
Agriculture and natural resources	605	100.0	0	91.6	8.0	.4
Arts and humanities	1,113	100.0	2.8	62.5	33.3	1.3
Biological sciences	1,123	100.0	1.5	67.9	28.8	1.8
Business and management	1,109	100.0	1.4	76.5	20.4	1.6
Education	677	100.0	2.4	81.4	13.8	2.4
Engineering	646	100.0	1.2	87.7	11.1	0
Mathematics	1,079	100.0	.5	79.1	20.4	0
Physical sciences	1,033	100.0	1.0	74.6	24.2	.1
Social sciences, basic	1,124	100.0	2.4	68.8	27.4	1.4
Social sciences, other	977	100.0	3.3	70.5	26.3	0

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bThe number of institutions varies because not all institutions have all fields.

Table 7

Expected Changes in the Proportion of New Full-Time Faculty with Doctorates, by Field, 1977-82:
Public Two-Year Colleges

Field	Total		Percent of Institutions Expecting Proportion with Doctorates ^a to:			
	Numbe. ^b	Percent	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82
Agriculture and natural resources	574	100.0	0	91.1	8.5	.4
Arts and humanities	867	100.0	3.6	61.9	32.8	1.8
Biological sciences	892	100.0	1.9	68.3	29.5	.4
Business and management	878	100.0	1.8	78.6	19.2	.4
Education	508	100.0	3.2	81.2	15.5	0
Engineering	569	100.0	1.4	88.9	9.7	0
Mathematics	848	100.0	.6	76.6	22.7	0
Physical sciences	818	100.0	1.3	69.4	29.1	.1
Social sciences, basic	873	100.0	3.1	68.8	28.1	0
Social sciences, other	780	100.0	4.2	71.5	24.4	0

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bThe number of institutions varies because not all institutions have all fields.

Table 8

Expected Changes in the Proportion of New Full-Time Faculty with Doctorates, by Field, 1977-82:
Private Two-Year Colleges

Field	Total		Percent of Institutions Expecting Proportion with Doctorates ^a to:			
	Number ^b	Percent	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82
Agriculture and natural resources	31	100.0	0	100.0	0	0
Arts and humanities	246	100.0	0	64.7	35.3	0
Biological sciences	231	100.0	0	66.7	26.7	6.7
Business and management	231	100.0	0	68.8	25.0	6.2
Education	169	100.0	0	81.8	9.1	9.1
Engineering	77	100.0	0	80.0	20.0	0
Mathematics	231	100.0	0	87.5	12.5	0
Physical sciences	215	100.0	0	92.9	7.1	0
Social sciences, basic	246	100.0	0	68.8	25.0	6.2
Social sciences, other	197	100.0	0	66.7	33.3	0

^aIncludes those likely to receive the doctorate within two years of their appointment.

^bThe number of institutions varies because not all institutions have all fields.

Table 9

Degree of Preference for New Faculty with Doctorates by Type and Control of Institution:
For Science and Engineering Fields
(In Percentages)

Degree of Preference	Total		Public		Private	
	Four-Year (N=1,415)	Two-Year (N=1,146)	Four-Year (N=377)	Two-Year (N=906)	Four-Year (N=1,038)	Two-Year (N=246)
Consider doctorates <u>essential</u> for all new faculty	17.9	1.3	24.4	1.6	15.6	0
<u>Strongly prefer</u> doctorates for all new faculty	48.6	6.6	43.7	5.2	50.4	11.8
Consider doctorates essential (or strongly prefer) for new faculty in <u>some</u> fields but not in others	14.7	9.5	23.3	7.3	11.7	17.6
<u>Slightly prefer</u> doctorates for all new faculty	9.4	33.4	6.6	36.1	10.4	23.5
<u>Do not prefer</u> doctorates for <u>any</u> new faculty	1.8	38.2	0	37.4	2.4	41.2
Other	7.7	11.0	2.0	12.4	9.6	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Includes only institutions which had science and engineering fields.

Table 10

Degree of Preference for New Faculty with Doctorates by Type and Control of Institution:
For Nonscience Fields
(In Percentages)

Degree of Preference	Total		Public		Private	
	Four-Year (N=1,573)	Two-Year (N=1,146)	Four-Year (N=383)	Two-Year (N=900)	Four-Year (N=1,190)	Two-Year (N=246)
Consider doctorates <u>essential</u> for all new faculty	7.3	1.3	11.3	1.6	6.0	0
<u>Strongly prefer</u> doctorates for all new faculty	34.2	6.0	33.1	4.4	34.5	11.8
Consider doctorates essential (or strongly prefer) for new faculty in <u>some</u> fields but not in others	41.9	12.2	49.4	9.1	39.5	23.5
<u>Slightly prefer</u> doctorates for all new faculty	11.3	33.4	4.2	36.1	13.5	23.5
<u>Do not prefer</u> doctorates for <u>any</u> new faculty	0	36.2	0	36.4	0	35.3
Other	5.4	11.0	2.0	12.3	6.5	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Includes only institutions which had nonscience fields.

Appendix A: Survey Instrument
AMERICAN COUNCIL ON EDUCATION
ONE DUPONT CIRCLE
WASHINGTON, D. C. 20036

HIGHER EDUCATION PANEL
(202) 833-4757

April 25, 1977

Dear Higher Education Panel Representative:

Enclosed is the thirty-eighth survey of the Higher Education Panel: Educational Attainment of New (First-Time) Faculty at Two-Year and Four-Year Colleges, 1976-77. This survey has been designed to obtain information for all three sponsoring federal agencies--the National Science Foundation, the U. S. Office of Education, and the National Institutes of Health.

The results of this survey will greatly assist those persons in federal agencies who are responsible for projecting future requirements for doctorates in various fields. Moreover, the results should prove very useful to administrators and academic planners at the colleges themselves.

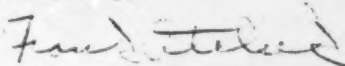
Please be assured that your responses will be held in strictest confidence. As usual, the data you provide will be reported in summary fashion only and will not be identifiable with your institution.

We would appreciate your returning the completed questionnaire by May 16, 1977. A return envelope is enclosed for your convenience.

If there are any questions or problems with this survey, please do not hesitate to telephone us collect at (202) 833-4757.

Thank you for your assistance.

Sincerely,



Frank Atelsek
Director

FA:ec
Enclosures

Educational Attainment of New (First-Time) Faculty at Two-Year and Four-Year Colleges, 1976-77

1. A. How many new people joined the regular full-time faculty in your college in the fields listed below in academic year 1976-77? Please count only those who had not previously been employed as full-time faculty at another college or university.

B. Of those included in "A", how many either have doctorates or are likely to receive them within one or two years of being appointed?

Field	A Number of New Full-Time Faculty in 1976-77	B Number of New Full-Time Faculty in 1976-77 Who Have or Will Likely Receive Doctorates *
Agriculture and natural resources	_____	_____
Arts and humanities	_____	_____
Biological sciences	_____	_____
Business and management	_____	_____
Education	_____	_____
Engineering	_____	_____
Mathematics	_____	_____
Physical sciences	_____	_____
Social sciences, basic	_____	_____
Social sciences, other	_____	_____

2. With respect to your institution, how do you expect the proportion of new faculty with doctorates (1B÷1A) to change in the next five years? (Check one box for each field; use "not applicable" to indicate any field not represented at your institution.)

Field	Decrease Remain Constant Increase Increase to 100% by 1981-82 Not Applicable				
	Decrease	Remain Constant	Increase	Increase to 100% by 1981-82	Not Applicable
Agriculture and natural resources	_____	_____	_____	_____	_____
Arts and humanities	_____	_____	_____	_____	_____
Biological sciences	_____	_____	_____	_____	_____
Business and management	_____	_____	_____	_____	_____
Education	_____	_____	_____	_____	_____
Engineering	_____	_____	_____	_____	_____
Mathematics	_____	_____	_____	_____	_____
Physical sciences	_____	_____	_____	_____	_____
Social sciences, basic	_____	_____	_____	_____	_____
Social sciences, other	_____	_____	_____	_____	_____

* Applies to those who have fulfilled all doctoral requirements other than dissertations which are likely to be completed within one to two years of being appointed.

3. In evaluating the qualifications of potential new faculty in the fields of science and engineering,** how strongly does your institution prefer candidates with doctorates?

(Please check
only one)

- a. Consider doctorates essential for all new faculty _____
- b. Strongly prefer doctorates for all new faculty _____
- c. Consider doctorates essential (or strongly prefer) for new faculty in some fields but not in others _____
- d. Slightly prefer doctorates for all new faculty _____
- e. Do not prefer doctorates for any new faculty _____
- f. Other (please explain) _____

4. In evaluating the qualifications of potential new faculty in the fields other than science and engineering,** how strongly does your institution prefer candidates with doctorates?

(Please check
only one)

- a. Consider doctorates essential for all new faculty _____
- b. Strongly prefer doctorates for all new faculty _____
- c. Consider doctorates essential (or strongly prefer) for new faculty in some fields but not in others _____
- d. Slightly prefer doctorates for all new faculty _____
- e. Do not prefer doctorates for any new faculty _____
- f. Other (please explain) _____

** "science and engineering" fields include agriculture and natural resources, biological sciences, engineering, mathematics, physical sciences, and basic social sciences.

-23-

Thank you for your assistance.

PLEASE RETURN THIS SURVEY BY May 16, 1977
TO:

Higher Education Panel
American Council on Education
One Dupont Circle, N.W.
Washington, D.C. 20036

PLEASE RETAIN A COPY OF THIS SURVEY FOR YOUR RECORDS.

PERSON COMPLETING FORM:

Name _____

Office _____

Telephone () _____

If there are questions please call us collect at (202) 833-4757

(over for definitions)

DEFINITIONS

1. *Regular Full-Time Faculty*

Please include instructors and assistant professors.

Do not include the following: visiting professors, postdoctorates and research associates, graduate students, or others who are not regular full-time members of the faculty.

If a full-time faculty member has appointments in more than one of the fields below, include that faculty member in the field in which the most work time is spent.

2. *Doctorates*

Include Ph.D., Sc.D., and Ed.D. degrees.

Do not include J.D., M.D., D.D.S., D.V.M., and other health-care related degrees.

3. *Fields*

Agriculture and natural resources: Include agriculture, forestry, and related fields. (Exclude agricultural economics, which should be reported under "social sciences, basic".)

Arts and humanities: Include English, foreign languages, communications, fine and applied arts, and related fields.

Biological sciences: Include biology, botany, zoology, ecology, embryology, entomology, genetics, nutrition, plant pathology, plant physiology, anatomy, biochemistry, biophysics, microbiology, pathology, pharmacology, physiology, and related fields.

Business and management: Include general business, accounting, operations research, marketing, and related fields.

Education: Include elementary, secondary, higher, adult, special, and related fields of education.

Engineering: Include aeronautical, architectural, biomedical, ceramic, chemical, civil, electrical, engineering sciences, environmental health engineering, geological, industrial, mechanical, mining, nuclear, petroleum, and all other forms of engineering. (Exclude engineering technologies.)

Mathematical sciences: Include mathematics, statistics, computer sciences, data processing, systems analysis, and all related fields.

Physical sciences: Include chemistry, earth sciences, physics, geology, meteorology, astronomy, metallurgy, geophysics, pharmaceutical chemistry, and related fields.

Social sciences, basic: Include agricultural economics, geography, economics, anthropology, archeology, economics, linguistics, sociology, government (political science), demography, and psychology. (Do not include history, social work, public administration, and other applied fields, which should be reported under "social sciences, other".)

Social sciences, other: Include area studies, public administration, public services and affairs, international relations, social work, criminology, urban and regional planning, social sciences-general, urban studies, library sciences and history.

Appendix B: Comparison of Respondents and Nonrespondents

Of the 535 Panel members surveyed, 84 percent provided usable data before the cutoff date for returning questionnaires.

The survey respondents were remarkably like the nonrespondents, with respect not only to type and control, but also to size, location, and level of education offered. Response rates ranged from a low of 50 percent for institutions awarding the first-professional as the highest degree to a high of 90 percent for colleges awarding higher than a master's degree but lower than a doctorate.

Comparison of Respondents and Nonrespondents

Characteristics	Respondents (N=449)	Nonrespondents (N=86)	Response Rate
Total	100.0	100.0	83.9
Control			
Public	71.0	76.7	82.9
Private	29.0	23.3	86.7
Type			
Four-year college	60.8	55.8	85.0
Two-year college	39.2	44.2	82.2
Highest degree awarded			
< BA	39.2	44.2	82.2
Baccalaureate	15.1	15.1	84.0
First professional	.4	2.3	50.0 *
Master's	20.5	22.1	82.9
> MA < Ph.D	11.8	7.0	89.8
Doctorate	12.9	9.3	87.9
Census Region			
East	24.8	30.5	81.5
Midwest	24.1	22.0	85.6
South	29.5	24.4	86.8
West	21.6	23.2	83.5
Total Enrollment			
< 1,000	13.8	10.6	87.3
1,000 - 2,499	17.4	18.8	83.0
2,500 - 4,999	19.0	17.6	85.0
5,000 - 9,999	24.6	24.7	84.0
10,000 or more	25.2	28.2	82.5
FTE Enrollment			
< 1,000	18.3	18.6	83.7
1,000 - 2,499	24.7	24.4	84.1
2,500 - 4,999	21.4	22.1	83.5
5,000 - 9,999	26.9	24.4	85.2
10,000 or more	8.7	10.5	81.2

* Falls short of overall response rate by more than 10 percent.

Appendix C: Stratification Design

Cell	Characteristic	Population (N=2,803)	Panel (N=535)
1	Public black four-year colleges	13	12
2	Public nonblack four-year colleges (FTE > 8,750)	107	93
3	Private nonblack four-year colleges (FTE > 8,750)	13	10
4	Public two-year colleges (FTE > 8,750)	36	34
5	Public four-year colleges (FTE 3,700-8,750)	77	41
6	Public four-year colleges (FTE < 3,700)	193	38
7	Private four-year colleges (FTE 2,000-8,750)	134	39
8	Private four-year colleges (FTE 1,000-1,999)	280	46
9	Private four-year colleges (FTE < 1,000)	840	41
10	Public two-year colleges (FTE 5,100-8,750)	62	36
11	Public two-year colleges (FTE 3,260-5,099)	104	42
12	Public two-year colleges (FTE 1,600-3,259)	177	41
13	Public two-year colleges (FTE < 1,600)	521	44
14	Private two-year colleges	246	18

Note: FTE is full-time equivalent enrollment.

**Other Reports of the Higher Education Panel
American Council on Education**

- Blandford, B. and Dutton, D. **Survey of First-Year Graduate and Postdoctoral Enrollment in Science and Engineering**. Higher Education Panel Report, No. 1, August, 1971.
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- El-Khawas, E. H. and Kinzer, J. L. **The Impact of Office of Education Student Assistance Programs, Fall 1973**. Higher Education Panel Report, No. 18, April, 1974.
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- El-Khawas, E. H. and Kinzer, J. L. **A Survey of Continuing Education Opportunities Available to Nonacademic Scientists, Engineers and Mathematicians**. Higher Education Panel Report, No. 23, April, 1975.
- Atelsek, Frank J. and Gomberg, Irene L. **Bachelor's Degrees Awarded to Minority Students, 1973-74**. Higher Education Panel Report, No. 24, January, 1977.
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- Atelsek, Frank J. and Gomberg, Irene L. **Foreign Area Research Support Within Organized Research Centers at Selected Universities, FY 1972 and 1976**. Higher Education Panel Report, No. 32, December, 1976.
- Atelsek, Frank J. and Gomberg, Irene L. **College and University Services for Older Adults**. Higher Education Panel Report, No. 33, February, 1977.
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- Atelsek, Frank J. and Gomberg, Irene L. **International Scientific Activities at Selected Institutions, 1975-76 and 1976-77**. Higher Education Panel Report, No. 37, January, 1978.

Single copies of the above reports may be obtained from the Higher Education Panel, American Council on Education, One Dupont Circle, Washington, D. C. 20036.